UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,246	05/09/2006	Yasuhiro Okumoto	03327.2333	9261

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)	
Office Action Summary	10/539,246	OKUMOTO ET AL.	
	Examiner	Art Unit	
	Nathan H. Empie	1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>6/16/2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *12/20/06, 6/16/05*.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Claim Objections

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said processing system" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. The reviewer will examine claim 11 as "a processing system" in its place.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipate by Jeon et al. (US patent 6,090,632, hereafter '632).

'632 teaches a processing method (Abstract) comprising:

a processing step of continuously processing a member to be processed (a first unit process is carried out in piece of equipment (1) (Fig 2, col 3 lines 1-4), (process S14, Fig 3A, col 3 lines 25-31);

an inspection step (S16) of inspecting a processed state of said member processed through said processing step (step S16 and S10, Fig 3A, col 3 lines 19-35);

a processing state determination step of determining whether said processing state is defective or nondefective (S10, S18), on the basis of a result of inspection performed through said inspection step (S16) (Fig 3A, col 3 lines 30-45);

a continuity determination step (main statistic test) of determining whether or not defective determination is continuously made when said processed state has been determined to be defective through said processing state determination step (S70, Fig 3B, col 3 line 59- col 4 line 17 describe the "main statistic test", col 4 lines 56-65 describe the test being run at S70);

and a processing control step of controlling processing such that processing of said member continuously performed through said processing step is stopped when a defective determination is determined to have been continuously made through said continuity determination step (S90) (Fig 3B, col 4 line 56 – col 5 line 8).

Claim 2: '632 teaches the processing method according to claim 1 (described above), further comprising: a reinspection step of reinspecting (in preferred embodiment, after stopping the process, process testing is performed again, making a second determination) said processed member and an inspection state determination step of determining said inspected state acquired through said inspection step, on the basis of a result of inspection performed through said reinspection step (col 4 line 56 – col 5 line 8).

Claim 3: '632 teaches the processing method according to claim 1 (described above), further comprising: a defective level determination step of determining a defective level determined through said processing state determination step, wherein, when said defective state is determined to have reached a predetermined level in said defective level determination step, processing of said member continuously performed in said processing step is halted during said processing control step (S30-S90) (Fig 3B col 4 line 56 – col 5 line 3).

Claim 4: the processing method according to claim 1 (described above), wherein, when said defective determination is determined to continue in said continuity determination step, processing of said member continuously performed in said processing step is temporarily suspended in order to await an external command (when equipment is stopped... the operator or engineer can rapidly cope with the situation) (col 5 lines 15-20) for said processing control step, and wherein the continuous processing is suspended in said processing control step in accordance with said external command (S30-90) (Fig 3B col 4 line 56 – col 5 line 20).

Claim 5: '632 teaches the processing method according to claim 1 (described above), further including a processing condition change step of performing control for changing conditions employed in said processing step to process said member when said defective determination has been determined to be continuously made in said continuity determination step (S100, Fig 3B, in a preferred embodiment, information on the series of appropriate actions taken (such as adjusting the process settings) at step S100 is automatically saved in the host computer) (col 5 lines 3-14).

Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (US patent 5,726,920 hereafter '920).

'920 teaches a processing system (col 3 line 55 – col 4 line 36) comprising:

a processing section for continuously processing a member to be processed (fab lines 101 a/b extending from upstream production steps / equipment (not shown) (col 5 lines 24-28);

an inspection section for inspecting a processed state of said member processed by said processing section (test equipment such as FWS test station (110), Fig 1A/B, col 5 lines 44-47);

a processed state determination section for determining whether said processed state is defective/nondefective on the basis of a result of inspection performed by said inspection section (data signals (125) collected from test head (115-118) are sent to a database computer (150) to determine defective regions of wafers) (Fig 1 A/B, col 7 line 31- col 8 line 41);

a continuity determination section for determining whether or not a defective determination is

continuously made when said processed state is determined to be defective by said processed state

determination section (computer (150) analyzes data and recognizes when excessive numbers of failures

are detected) (col 9 lines 6-13);

and a processing control section for controlling processing so as to stop processing of said

member continuously performed by said processing section when said continuity determination section

determines that said defective determination is continuously made (computer (150) can issue a shutdown

instruction for a defective fabrication line if excessive number of failures occur) (col 9 lines 5-22).

Claim 7: '920 teaches the processing system according to claim 6 (described above), further

comprising: a reinspection section (110') for reinspecting said processed member (wafer disposition /

inking station 107 can be instructed by way of control path 161 to return "defective" wafers for further

testing by a different 'known to be good' test station (110')) (col 9 lines 26-39);

and an inspection state determination section for determining said inspected state determined by

said inspection section, on the basis of a result of inspection performed through said reinspection section

(trend reports (180) are gathered by (150) from 110 and 110' (col 9, lines 44-51), the computer can use

collected differentiable date to detect problems due to defects in specific test fixtures (110, or 110') (col

12, lines 25-34)

Claim 8: '920 teaches the processing system according to claim 6 (described above), further

comprising: a defective level determination section for determining a defective level determined by said

processing state determination section, wherein, when said defective level determination section

determines that said defective state has reached a predetermined level (a comparator module (440)

compares accumulated data from the test stations against a respective alarm limit) (col 17 lines 1-7),

processing of said member continuously performed by said processing section is halted by said

processing control section (comparator module (440) issues an alarm signal or other automatically

initiated response by way of functional connection (445) (col 17 lines 8-14), the automatically initiated

reaction can be one of the generation of an automatic shutdown control via (155) and (161-163) (Fig 1A)

(col 17 lines 35-44)).

Claim 9: '920 teaches the processing system according to claim 6 (described above), wherein,

when said continuity determination section determines that said defective determination is continuously

made (comparator module (440) (col 17 lines 8-14)), processing of said member continuously performed

by said processing section is temporarily suspended for awaiting an external command for said processing

control section (comparator module (440) issues an alarm signal or other automatically initiated response

by way of functional connection (445) (col 17 lines 8-14)), and wherein the continuous processing is

suspended by said processing control section in accordance with said external command (the

automatically initiated reaction can be one of the generation of an automatic shutdown control via (155)

and (161-163) (Fig 1A) (col 17 lines 35-44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over '920 in view of Tamaki

(JP 2000-269108 A, hereafter '108).

'920 teaches the processing system according to claim 6 (described above), and a said continuity

determination section (comparator module (440)) to determine that said defective determination is

continuously made (accumulating data lie outside pre-defined, expected ranges) and it teaches the

comparator module (440) issues an alarm signal or other automatically initiated response (col 17 lines 1-

44), but it does not specifically teach a processing condition change control section which performs

control for changing conditions employed by said processing system to process said member when

defective determination is continuously made. '108 teaches a management system for a semiconductor

fabrication device which is capable of not only stopping a semiconductor fabrication line, but issues

orders to change the manufacturing installation to solve the problem of defect generation (abstract and

[0015-0017]). When the results obtained from the computer (150) and comparator module (440) of '920

identify that the problem is occurring at one of the fabrication line stations (col 14 line 60 – col 15 line 7)

it would be advantageous if the automatically initiated response would be one of a process condition

change. Both '920 and '108 teach systems to monitor and improve the yield of semiconductor processing

lines, thus it would have been obvious to one of ordinary skill in the art at the time of invention to have

incorporated the action of altering the process condition as described by '108 as an appropriate

automatically initiated response for the system described by '920 to more quickly and efficiently fix

problems occurring in the fabrication line to improve its yield.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over '623.

'623 teaches a processing state determination step of determining whether said processing state

defective or nondefective (S10, S18) on the basis of a result of inspection performed by said inspection

section (S16) (Fig 3A, col 3 lines 30-45);

a continuity determination step (main statistic test) of determining whether or not defective

determination is continuously made when said processed state has been determined to be defective

through said processing state determination step (S70, Fig 3B, col 3 line 59- col 4 line 17 describe the

"main statistic test", col 4 lines 56-65 describe the test being run at S70);

and a processing control step of controlling processing such that processing of said member

continuously performed through said processing step is stopped when a defective determination is

determined to have been continuously made through said processing section (S90) (Fig 3B, col 4 line 56 –

col 5 line 8).

But '623 does not teach a computer-readable recording medium with a program recorded thereon

for controlling a processing system, having a processing section for continuously processing a member to

be processed, and an inspection section for inspecting a processed state of a member processed by said

processing section, the program causing said computer to perform processing of the above described

steps. It would have been obvious to one having ordinary skill in the art at the time the invention was

made to place a program for controlling a processing system as described above, since it has been held

that broadly providing an automatic means to replace manual activity which has accomplished the same

result involves only routine skill in the art. *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,430,456; US 6,320,402; US 6,445,969; US 6,421,574; US 2001/0051836; US 2001/0020194; US

6,123,983; US 5,940,300 as they apply to methods and apparatus for inspecting and improving
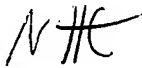
semiconductor processes.

Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Nathan H. Empie whose telephone number is (571) 270-1886. The examiner can normally

be reached on M-F, 7:00- 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where

this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR

CANADA) or 571-272-1000.

NHE

MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER